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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/017,937	02/03/1998	STEPHEN D. JULSTROM	12078US01	9038
7590	10/19/2005		EXAMINER	
MCANDREWS HELD & MALLOY			PENDETON, BRIAN T	
500 WEST MADISON STREET				
34TH FLOOR			ART UNIT	PAPER NUMBER
CHICAGO, IL 60661			2644	

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/017,937	JULSTROM ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Brian T. Pendleton	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 06 July 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 128-136, 138-141, 145-153, 155-158, 162-168 and 172-174 is/are pending in the application.  
 4a) Of the above claim(s) 145-153, 155-158, 162-168 and 172-174 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 128-136 and 138-141 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 03 February 1998 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Election/Restrictions***

Applicant's election with traverse of group I in the reply filed on 7/6/04 is acknowledged.

The traversal is on the ground(s) that there is no burden on the Examiner and that the claims are directed to the same subject matter. This is not found persuasive because the three groups of inventions each claim a different method of limiting adverse effects on the assembly output signal from amplitude and phase mismatches. However, Examiner is dropping the election of species requirement.

The requirement is still deemed proper and is therefore made FINAL.

Claims 145-153, 155-158, 162-168 and 172-174 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 7/6/04.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 128, 131-135 are rejected under 35 U.S.C. 102(e) as being anticipated by Grosz, US Patent 6,122,389. Grosz discloses a microphone assembly 10 comprising microphone element 12 and signal processing circuitry contained within the housings 18 and 20 (column 4

lines 19-23). The microphone element 12 is a first order gradient microphone (column 3 lines 1-7) having two acoustic input ports. Inherently, a first order gradient microphone has two microphone elements in order to produce the first order microphone signal. The gradient microphone is an electret microphone which is configured to limit adverse effects on the assembly output signal from amplitude mismatch. The signal processing circuitry corrects the polar response of the microphone when flush mounted in a baffle, thereby limiting the adverse effects on the assembly output signal from phase mismatch. Column 6 lines 28-46 disclose that the microphone 10 is to be mounted in an automobile headliner. Claim 128 is met. Regarding claim 131, acoustic damping materials 26 and 28 qualify as protective screens. As to claims 132 and 133, as stated above, the microphone assembly 10 is mounted in an automobile headliner. Regarding claims 134 and 135, since the microphone 10 is mounted in a headliner, there is inherently a protective covering.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 129 and 130 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grosz in view of Killion et al, US Patent 6,831,987. Grosz does not disclose at least one sealing gasket located between the case and mounting side of the acoustical barrier. In the same field of endeavor, directional microphones, Killion et al disclose a directional microphone assembly in figure 9 comprising microphone elements 20 and 30, sound input ports 183 and 184 and sealing

gasket 170. The sealing gasket 170 is used to acoustically isolate the microphone elements 20 and 30 and seal the microphone elements to the top plate 180 of the microphone assembly. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a sealing gasket, as taught by Killion, to seal the microphone assembly 10 of Grosz to the headliner of a vehicle.

Claims 136 and 138 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al in view of Baumhauer, Jr. et al, US Patent 5,515,445. Yamamoto discloses a microphone assembly in figure 13 comprising two microphones 1a, 1c, signal processing circuitry (high pass filters 6a, 6c), and differencing circuit 3. The microphones are each uni-directional microphones, therefore they are configured to limit adverse effects on the assembly output signal from filter 4. Yamamoto does not disclose that the differencing circuit has two gain adjusters for trimming out mid-band amplitude sensitivity differences in the two microphones. However, it was suggested in column 10 lines 18-25 that the difference in microphone sensitivity caused deterioration in the directivity of the microphone system. In addition, column 11 lines 37-57 suggested adjusting the characteristics of the microphone system to compensate for the difference. Baumhauer, Jr. et al disclose a microphone system comprising gain adjusters 110 and 111 in figure 1 which are used to trim out sensitivity differences between microphones 101 and 102. The advantage of the system was to match the sensitivities of microphones in directional microphone systems that are not manufactured uniformly or may change over time. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the gain adjusters, as taught by Baumhauer, Jr., in the apparatus of Yamamoto for the purpose of improving the directivity of the microphone assembly. Claim 136

is met. As to claim 138, Yamamoto discloses a case 5 in figure 1. It was well known in the art to encase directional microphone systems, so one of ordinary skill in the art would be motivated to do so.

Claims 139 and 140 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of Baumhauer, Jr. as applied to claim 138 above, and further in view of Grosz. The combination of Yamamoto and Baumhauer, Jr. does not disclose that the microphone assembly is mounted on a mounting side of an acoustical barrier whereby the acoustical barrier comprises an interior surface of a passenger vehicle. However, it was well known to use directional microphone systems in vehicles, as demonstrated by Grosz. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to utilize the directional microphone system created by Yamamoto and Baumhauer, Jr., in a vehicle headliner, as suggested by Grosz, for the purpose of hands-free telephony, for example.

Claim 141 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grosz in view of Killion and further view of Marash, US Patent 6,332,028. The combination of Grosz and Killion discloses a microphone system having at least two microphones, signal processing circuitry, a case for mounting on a mounting side of an acoustical barrier, and a sealing gasket, whereby the signal processing circuitry and microphones are configured to limit adverse effects on the microphone system output signal due to amplitude and phase mismatches. The combination does not disclose an additional low frequency output signal having a response lower than the microphone system output signal. Marash discloses a microphone system for noise cancellation comprising a plurality of microphones, a main channel matrix, and a reference channel matrix. The reference channel is directed to noise and has a low frequency filter 8. The main channel

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matrix is directed to the wanted signal source. The system accomplishes interference (noise) cancellation in the lower frequency range. Thus, there is generated a microphone assembly output signal from main channel matrix 2 and an addition low frequency output signal from reference channel matrix 3 and filter 8. The advantage of the system was to cancel noise in its most appropriate frequency range, the lower end of the acoustical spectrum. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to establish an additional low frequency signal in the apparatus described by Grosz and Killion for the purpose of noise cancellation in a directional microphone system.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian T. Pendleton  
Primary Examiner  
Art Unit 2644

btp

